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ABSTRACT

The performance of Hispanic participants in the Summer Training and Education Program (STEP) was examined in detail because findings about short-term outcomes for the first year of STEP operation were more promising for Hispanics than for members of other ethnic groups. In addition, Hispanic performance was examined because of the relatively poor educational status of Hispanics compared to Blacks and Whites. STEP is a national demonstration project that aims to improve high school graduation rates by preventing academic failure and teen parenting. Program components are math and reading remediation, curriculum designed to prevent teen pregnancy, work experience, and school-year support. Approximately 16% of the randomized sample of STEP youth (124 treatment and 129 control) in 1985 were Hispanic. Hispanics and non-Hispanics were similar with respect to demographic, economic, and fertility-related characteristics; but Hispanic youth were educationally disadvantaged as shown by characteristics such as absenteeism, lack of interest in reading and math, and lower educational expectations. The net impact of participation for Hispanics was equivalent to half a grade level in math and slightly more than a grade level in reading. Hispanic treatment youth significantly increased their expectations for post-secondary education and changed their attitudes about responsibility for contraception. (JHZ)

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The Experience of Hispanic Participants in the Summer of 1985

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Summer Training and Education Program (STEP)

The Experience of Hispanic Participants in the Summer of 1985

by Cynthia L. Sipe

December 1986

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EXECUTIVE SUMMARY

This report focuses on the performance of Hispanic participants in the Summer Training and Education Program (STEP) during the summer of 1985. STEP is a national demonstration project that aims to improve high school graduation rates by dealing with its two root causes -- academic failure and teen parenting. It incorporates remedial education and life skills instruction (which emphasizes responsible social and sexual behavior) into federally funded Summer Youth Employment and Training Programs (SYETP). Participants attend classes part-time and work part-time during the six- to eight-week summer program, participate in school-year support activities in the subsequent school year and return for a second summer of classes and work experience. (An equal number of randomly assigned control youth work full-time during the first summer of the program.)

The remediation component of STEP provides 90 hours of basic skills instruction in reading and math utilizing competency-based techniques and computer-assisted instruction. The 18 hours of life skills and opportunities instruction, designed specifically for 14- and 15-year-olds, uses films and group discussions to emphasize links between sexual choices and future prospects. Work experience in jobs such as maintenance, clerical, and recreation for both treatment and control youth is provided by local Summer Youth Employment and Training Programs funded by federal Job Training Partnership Act monies. The final STEP component, school-year support, provides continued support and encouragement during the school year between the first and second summers of STEP.

Approximately 16 percent of the randomized sample of STEP youth (124 treatment and 129 control) in 1985 were Hispanic. Although the Hispanic and non-Hispanic youth who participated in the first summer of STEP were very similar with respect to their demographic, economic, and fertility-related characteristics and scores on standardized tests, Hispanic youth were more disadvantaged with respect to some other educational characteristics. Hispanic youth were more likely to report high absenteeism, a lack of interest in reading and math and lower educational expectations than the non-Hispanic youth.

Learning losses were large for Hispanics in the STEP control group and may contribute to higher dropout rates. The impact of STEP participation on academic performance was much greater for Hispanics than for any other racial/ethnic group. Hispanic control youth lost significantly more than Hispanic treatment youth in both reading and math. The net impact of participation for Hispanic youth was equivalent to half a grade level in math and slightly more than a grade level in reading.

Participation in STEP also increased the educational expectations of Hispanic youth. While the percentage of control youth who expected to continue their education beyond high school declined over the summer, the percentage of Hispanic treatment youth who expected to obtain post-high school education increased from 59 percent at the beginning of the program to 67 percent at the end of the summer.

With respect to fertility-related impacts, Hispanic treatment youth significantly increased their general contraceptive knowledge and their knowledge of birth control availability over the summer. The percentage of Hispanic treatment youth who perceive contraception as the responsibility of both partners significantly increased from 66 percent at baseline to 87 percent at the end of the summer. The duration of STEP (less than two months) was too short to provide any indication of whether this increase in knowledge translates into more responsible sexual behavior.

The large summer learning losses suffered by control youth may be relevant to the issue of distribution in time spent in school. Early reviewers of the STEP findings have suggested that the pattern of learning loss observed in STEP indicates that year-round schooling with decreased vacation time or summer interventions similar to STEP might neutralize sizeable learning losses experienced by disadvantaged youth over the summer.

The results for the first summer of the 15-month demonstration are very encouraging for the Hispanic youth who participated. Although these early findings suggest that STEP may be an effective intervention in assisting Hispanic youth to complete high school, they should be interpreted cautiously until further analyses are completed. Analysis of data from the second summer of participation, school records data and follow-up interviews (scheduled to begin in the fall of 1987) and for the second cohort (who began STEP in 1986) will provide more conclusive evidence of the effectiveness of STEP in increasing the educational attainment of Hispanic youth.

I. INTRODUCTION

The Summer Training and Education Program (STEP) is an intervention designed to increase the rate of high school graduation among disadvantaged youth. The STEP program seeks to accomplish this goal by addressing two primary determinants of dropout behavior -- academic performance and adolescent parenthood. Research suggests that a crucial determinant of academic performance is the extent to which learning slows, stops or even decays over the summer months. And at least one study (Heyns, 1978) indicates that the problem of learning regression over the summer is particularly acute for disadvantaged youth. STEP seeks to counteract the pattern of summer learning loss experienced by disadvantaged youth.

STEP is a national demonstration project developed and managed by Public/Private Ventures (P/PV) of Philadelphia and operated by five cities -- Boston, Fresno, Portland (Oregon), San Diego and Seattle. The 15-month intervention operates in conjunction with existing Summer Youth Employment and Training Programs, which offer summer employment to disadvantaged youth. Financial support for the demonstration is provided by a consortium of public and private funders including local Job Training Partnership Act Title II-B funds, the U.S. Department of Labor, The Ford Foundation, William T. Grant Foundation, Edna McConnell Clark Foundation, The William and Flora Hewlett Foundation, James C. Penney Foundation, Aetna Life and Casualty Foundation, The Ahmanson Foundation and Lilly Endowment, Inc. In addition to general support for the demonstration, The Ford Foundation also funded a special Hispanic initiative in conjunction with STEP.

STEP targets 14- and 15-year-old youth who are both economically and educationally disadvantaged. Youth must meet the income eligibility requirements of the federally funded Summer Youth Employment and Training Program (SYETP) and the educational criteria of STEP -- in school and either performing one to four grade levels behind in reading and/or math (but not below the fourth grade level in reading) as indicated by a standardized test, or having a history of grade retention.

STEP will serve approximately 1,500 youth over a three-summer period with an equal number of youth randomly assigned to a control group. STEP participants are offered at least 90 hours of remedial instruction in reading and math, 18 hours of Life Skills and Opportunities classes and part-time employment during the two consecutive summers of the program.[1] During the inter-

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[1] The number of remediation and work experience hours offered varied across the five sites. All sites offered at least 90 hours of remediation with a high of 102 hours. Work experience

vening school year, STEP seeks to continue the summer's progress by offering school-year support services to the participants. Those youth in the randomly assigned control group spend one summer in work experience alone.

With some variation from site to site, each program focuses on four key components:

1. The remediation component, the cornerstone of the STEP model, utilizes competency-based techniques, including computer-assisted instruction, and concentrates on reading and math. The remediation program defines the competencies toward which participants work, uses a short diagnostic test to assess their skills on entry, assesses participant progress, and provides students with frequent feedback over the summer.

2. The Life Skills and Opportunities component stresses responsible social and sexual behavior aimed at reducing teenage pregnancies. It was designed specifically for 14- and 15-year-olds. Films and group activities emphasize links among sexual choices, pregnancy, future career choices and employment prospects.

3. Work experience draws on job slots provided through the local summer youth programs. Fourteen- and 15-year-olds are typically placed in maintenance, clerical, food service and recreation-related jobs.

4. School-year support programs reinforce the progress youth make in the summer program and encourage them to remain in school and continue the program for the second summer.

This report focuses on the Hispanic participants in Cohort I (summer 1985 entrants) during their first summer of STEP. The investigation on which it is based was prompted by two facts. First, the relatively poor educational status of Hispanics compared to blacks and whites in the United States has focused interest on efforts to improve educational outcomes for Hispanic youth (Diaz, 1984; Hispanic Policy Development Project [HPDP], 1984; National Commission for Employment Policy [NCEP], 1982; Orum, 1986). Second, findings from the first year of STEP operation (reported in Branch, et al., 1986), which concerned

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hours offered ranged from 106 to 152 for treatment youth and from 227 to 291 for control youth. All five sites provided 18 hours of life skills and opportunities instruction to treatment youth. Across all sites treatment youth actually attended an average of 180 total program hours, of which 94 hours on average were remediation and life skills and opportunities. Control youth worked an average of 182 hours across the five sites.

short-term outcomes related to academic success, were most promising for Hispanic participants compared to other ethnic groups in the sample. Data from various sources indicate that compared to blacks and whites, Hispanic youth are more likely to be enrolled below grade level for their age group, drop out of school earlier and at a higher rate, complete fewer years of schooling and have higher rates of illiteracy (Orum, 1986).

Brown, et al. (1980) estimates that close to 25 percent of Hispanic youth are overage when they enter high school compared to less than 10 percent of white students. Although it is especially true for Hispanic youth aged 14 to 20, differential grade retention begins early; the percentage of Hispanic students enrolled below grade level is greater than for white students at every grade (U.S. Department of Commerce, 1980).

Dropout rates for Hispanic youth vary by subgroups (and by district and state), but data consistently indicate that a much higher percentage of Hispanics drop out of school than do blacks and whites. The National Commission for Employment Policy (NCEP, 1982:18) reported that the school dropout rate for Hispanics aged 20 to 24 was almost three times the rate for whites and one and one-half times the rate for blacks (U.S. Bureau of the Census, 1980). Data from the 1984 Current Population Survey indicate that not only is the ultimate dropout rate higher for Hispanics, but that Hispanics tend to leave school at earlier ages than blacks and whites. Beginning at age 14, the percentage of dropouts is higher for Hispanics (especially Mexican-Americans) than for other racial/ethnic groups (Orum, 1986: Table 25).

Because they drop out of school earlier and more often than their black and white counterparts, Hispanics complete fewer years of schooling. Data from the 1976 Survey of Income and Education indicate that Puerto Ricans and Mexican-Americans complete, on the average, 2.6 fewer years than whites (Fligstein and Fernandez, 1982). The National Commission for Employment Policy found that half of Hispanics over age 25 have completed less than 11 years of school. This is two years less than whites and one and one-half years less than blacks (NCEP, 1982).

Researchers have suggested that the poor educational status of Hispanics is partially due to English language difficulties (Brown, et al., 1980; Duran, 1984; O'Malley, 1981). The pattern of grade retention begins early in the school career and is more likely to occur for students who speak a non-English language. However, Diaz (1984:30) points out that the "absence of consistent data on Hispanics concerning language usage, the quality of the schools they attend, the quality and quantity of programs to teach English to Spanish speakers, and differences in the experiences of different Hispanic groups preclude drawing conclusions [with respect to the reasons for poor academic performance] with certainty."

Problems with English affect educational attainment, and limited English proficiency has a direct impact on the ultimate labor market position of Hispanics. The National Commission for Employment Policy reviewed studies of the relative impact of educational attainment, fluency in English and discrimination of the employment status on Hispanics and other race/ethnic groups. The research indicates that lack of proficiency in English is the most crucial factor in determining the labor market status of Hispanics (1982:53; Stolzenberg, 1982).

Although the long-term goal of STEP is to reduce dropout behavior of disadvantaged youth, intermediate goals of increasing academic success are important because of their relationship to increasing English language literacy. Short-term impacts are assessed through the analysis of changes in educational performance over the course of the summer program. The primary measure of academic performance, the Metropolitan Achievement Test (MAT), is one indicator of English language literacy. Short-term effects, indicated by changes in test scores for treatment youth in comparison to the control youth, are also an indication of increased English literacy. Because individuals who have limited English proficiency and literacy are likely to score lower on these tests, these analyses may be of particular interest for the Hispanic youth participating in STEP.

STEP is operating over a three-year period with two cohorts of participants. Over the two cohorts, STEP will serve approximately 250 Hispanic youth in the treatment sample and approximately 250 Hispanic youth in the control group. This report is based only on the first summer of STEP and, thus, includes only about half of the total sample of Hispanic participants. (The second cohort began participation in STEP during the summer of 1986 and future analyses will examine the impact of STEP on Hispanic youth in the full sample.)

Although the STEP data set is not national in scope, it provides an opportunity for looking at the behavior of at-risk youth while they are still in school. The National Commission on Secondary Schooling for Hispanics found that "40 percent of all Hispanic students who leave school do so before reaching the 10th grade..." (Hispanic Policy Development Project, 1984). Many of the national studies that examined dropout behavior are based on samples of older youth (e.g., High School and Beyond surveyed 10th and 12th graders). They do not include youth who dropped out of school at earlier grade levels. The 14- and 15-year old youth served by STEP were generally enrolled in the 8th or 9th grade in the school year preceding their first summer in STEP. Consequently, the sample includes, and permits examination of, those youth who may leave school a year or two prior to the 10th grade.

This report has two main sections: a discussion of Hispanic participant characteristics and an impact analysis. The demographic, socioeconomic, educational and fertility-related characteristics of these youth are presented in the first section. The impact analysis examines the effects of participation in STEP on both academic and fertility-related outcomes. For both the presentation of participant characteristics and the analyses of impact, Hispanic STEP participants are compared to Hispanic control youth and the non-Hispanic sample of STEP youth.

Most of the analyses examine Hispanic youth as a single group. As is well known, however, the ethnic designation "Hispanic," is comprised of several distinct ethnic subgroups. Although small sample sizes preclude extensive impact analysis, differences in the characteristics of the Hispanic subgroups in the sample are presented.

II. CHARACTERISTICS OF STEP HISPANIC PARTICIPANTS

THE DATA

Data on characteristics of youth entering the STEP program in the summer of 1985 were compiled from several sources. Application forms for the SYETP summer jobs program provided data on receipt of public assistance and selected demographic variables. Baseline and endline questionnaires provided data on other demographic variables, education, work experience, sexual experience, and knowledge of and attitudes towards contraception. Finally, the Metropolitan Achievement Test (MAT), Intermediate Level Survey Battery was administered to participants and control group members as a measure of academic performance over the summer. Data reported in the tables included in this report are derived from these sources unless otherwise noted.

THE SAMPLE

Of the 1,593 youth who were randomized for the 1985 STEP program, 16 percent (253) were Hispanic; 113 treatment and 119 control youth (92 percent) took the MAT pre-test and completed the baseline questionnaire. In looking at the characteristics of STEP youth, it is important to keep in mind that they are not representative of 14- and 15-year-old youth in general. STEP targets an in-school population that is poor and educationally deficient. At the same time, the sample does not include those who are most behind academically; the eligibility requires performing at least at the 4th grade level in reading. This floor was chosen because it was felt that only those youth with minimal decoding skills (i.e., reading at the 4th grade level) were likely to benefit from such an intervention. When comparing the Hispanic and non-Hispanic sample, one must realize that the floor may have had a disparate impact on the recruitment of Hispanics and Asians, since Hispanic and Asian youth with severe problems with English are more likely to not meet the reading criteria. The requirement that participants be currently enrolled in school may also have a slight effect on the Hispanic sample, since an estimated 5 percent of Hispanic youth (compared to 2.1 percent of whites and 3.6 percent of blacks) have already dropped out of school by 14 or 15 years of age (Orum, 1986:25, Figure 4.2).

DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS

Table II.1 provides data on selected demographic and economic characteristics of STEP participants. Data are presented for

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Table II.1

Demographic Characteristics of STEP Youth at Baseline

	PERCENTAGE OR MEAN DISTRIBUTION OF STEP YOUTH AT BASELINE			
	Hispanics			Non-Hispanics
	T	C	Total	Total
ETHNIC SUBGROUP				
Mexican-American	62.9%	66.7%	64.8%	N/A
Puerto Rican	16.9%	17.0%	17.0%	N/A
Other/Unknown	20.2%	16.3%	18.7%	N/A
SPANISH LANGUAGE USE				
Spoken in the Home	75.0%	75.6%	75.3%	N/A
Most Often Spoken at Home by Participant	40.7%	30.0%	35.2%	N/A
Most Often Spoken Outside Home by Participant	4.7%	5.6%	5.1%	N/A
SEX				
Male	50.8%	61.2%	56.1%	52.5%
Female	49.2%	38.8%	43.9%	47.5%
AGE				
$\leq$ 14	49.2%	46.5%	47.8%	50.9%
$\geq$ 15	50.8%	53.5%	52.2%	49.1%
OTHER DEMOGRAPHIC CHARACTERISTICS				
Household Size	5.30	5.37	5.34	5.21
Percent From Female Headed Households	52.8%	43.9%	48.2%	50.4%

Table II.1 - (cont'd)

	PERCENTAGE OR MEAN DISTRIBUTION OF STEP YOUTH AT BASELINE			
	Hispanics			Non-Hispanics
	T	C	Total	Total
Percent Reporting Limited English Proficiency	9.7%	9.3%	9.5%	7.9%
Percent With Prior Work Experience	37.5%	35.3%	36.4%	36.3%
Percent From Households Receiving Public Assistance	66.1%	62.2%	64.1%	60.7%

Hispanic treatment and control youth and for the total sample of non-Hispanics.[2] These data permit several conclusions:

- Hispanic treatment and control groups were appropriately similar. As expected with random assignment, most treatment-control differences were small. Although control group Hispanics were more often male and more often lived in male-headed households than Hispanic treatment youth, these differences did not attain statistical significance.

- Hispanic and non-Hispanic participants were similar, with respect to demographic and socioeconomic characteristics, excluding education. Hispanic subjects were more likely to be male, to have come from larger households and to be receiving public assistance than non-Hispanics -- but these differences were small and did not approach statistical significance.

- Participant households has characteristics typical of the economically disadvantaged. Nearly two-thirds of both Hispanic and non-Hispanic participants resided in households receiving some type of public assistance such as food stamps and/or AFDC. Approximately half the participants lived in female-headed households.

One of the reasons that has been offered as a partial explanation for poor academic performance of Hispanic youth is problems with the English language. Seventy-five percent of the Hispanic STEP youth indicated that Spanish is spoken in their home and approximately one-third reported that they speak Spanish most frequently at home. Previous research indicated that "about 70 percent of the children (aged 5 to 14) who live in households where Spanish is spoken are likely to have limited proficiency in English" (O'Malley, 1981). Although only 5 percent of the STEP Hispanics most often speak Spanish outside the home, Spanish is likely the first language for many of these youth.

In order to assess limited English proficiency, youth were asked whether they have problems understanding written and spoken English. Approximately 10 percent of the Hispanic youth in STEP indicated that they sometimes have trouble understanding English. While this may seem small, (estimates based on the 1976 Survey of Income and Education "suggest that up to 46 percent of those 14

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[2] In general, data and analyses presented in this report do not distinguish among non-Hispanics in the STEP sample. Approximately 70 percent of the non-Hispanic youth are black, 18 percent are Asian and the remainder are white or other. For further information regarding differential impacts for race/ethnic groups in STEP, see Branch, et al., 1986.

to 21 years old may have difficulties with English" NCEP, 1982:18) those with extreme difficulty were probably eliminated from the program by the reading floor.

The questions on limited English proficiency were asked specifically to provide additional information on Hispanic participants so that the effect of English problems on academic outcomes could be examined. Unfortunately, the majority of Hispanics in the sample (55 percent) did not answer the questions designed to tap limited English ability, despite the fact that most items on the questionnaire were answered by almost all participants. Concern about what the large non-response to these questions means and how to use these particular questions in the analysis prompted some exploratory data analysis.

The exploratory analysis compared the educational characteristics of the non-respondents to this question with students who reported a problem with English and those who reported no problem. With respect to absenteeism and grade retention, there is no significant difference between Hispanic STEP students who reported an English problem, those who reported no problem and those who did not answer the questions (although absenteeism is slightly higher for youth who reported a problem than for the other two groups). With respect to baseline MAT math and reading scores, the non-respondents closely resemble the Hispanic youth who reported having no problems understanding English (Table II.2). Hispanic youth who reported limited English proficiency scored considerably worse on the MAT reading test than the other two groups, but only slightly lower on the MAT math test.

These data indicate, given the similarity between the non-respondent and "no problem" groups, that Hispanic students who perceive they have a problem understanding English have reported it. For analysis purposes, the language problem questions were coded one if the respondent had a problem and zero otherwise. Although limited English proficiency clearly affects educational status, the small number of Hispanic youth in STEP who indicated such problems precludes extensive analysis of the effect of limited English proficiency on the impact of STEP.

Educational Characteristics

Table II.3 provides baseline information on the educational characteristics of Hispanic and non-Hispanic STEP youth.

Just under half of STEP participants (48.5 percent of Hispanic youth and 49.7 percent of the non-Hispanic sample) were enrolled in the 9th grade or higher during the 1984-85 school year. An additional 43 percent of these youth were in the 8th grade. Students making normal progress in school would typically be enrolled in the 9th and 10th grades at ages 14 and 15. With a majority enrolled in the 8th or 9th grades (and almost 9 percent

Table II.2

MAT Reading and Math Scores By Limited English Proficiency at Baseline, Hispanic Sample

	LIMITED ENGLISH PROFICIENCY		
	Yes	No	No Response
Mean MAT Reading Score	686	726	728
Mean MAT Math Score	700	707	708
Grade Equivalent in Reading	4.3	6.3	6.4
Grade Equivalent in Math	6.7	6.9	6.9

Table II.3

Educational Characteristics of STEP Youth at Baseline

	PERCENTAGE OR MEAN DISTRIBUTION OF STEP YOUTH AT BASELINE			
	Hispanics			Non-Hispanics
	T	C	Total	Total
GRADE IN SCHOOL DURING SY 84-85				
7th Grade or Less	5.3%	11.9%	8.7%	6.7%
8th Grade	45.1%	40.7%	42.9%	43.6%
9th Grade and Above	49.6%	47.5%	48.5%	49.7%
Percent Repeating a Grade	30.8%	29.3%	30.0%	27.9%
Percent Absent More Than 10 Days During SY 84-85	40.2%	46.2%	43.2%*	24.4%*
Mean MAT Reading Score	726	725	725	716
Mean MAT Math Score	711	708	710*	687*
Grade Equivalent in Reading	6.3	6.3	6.3	5.8
Grade Equivalent in Math	7.0	7.0	7.0	6.4
Percent Who Enjoy Reading	24.0%	26.9%	25.4%*	39.4%*
Percent Who Enjoy Math	39.8%	38.7%	39.2%*	52.8%*
Percent Expecting to Pursue Post-High School Education	57.8%	64.4%	61.2%*	73.0%*

*Differences between Hispanics and non-Hispanics are significant at the .01 level.

in the 7th grade or below), STEP Hispanic youth (as well as the non-Hispanic youth) are clearly behind. This conclusion is supported by the self-report data on grade retention. Approximately 30 percent of both Hispanic and non-Hispanic youth reported that they had repeated a grade at least once. Surprisingly these are similar for Hispanics and non-Hispanics.

Although the majority of STEP youth were enrolled in either the 8th or 9th grade during the 1984-85 school year (a year below where they should have been), their performance levels were considerably lower than their grade levels. Based on average baseline MAT scores, STEP Hispanic youth were performing at grade equivalent levels of 6.3 in reading and 7.0 in math. With an average grade level enrollment of 8.4, Hispanic STEP youth were approximately one and one-half grades behind in math and over two grades behind in reading. This disparity between grade level and level of performance is even larger when one considers where these youth should be in school.

Although Hispanic STEP youth were behind grade level in both reading and math, they were not as far behind, on average, as the non-Hispanic youth participating in STEP. The mean grade level enrollment for non-Hispanic STEP youth is 8.5. Based on their average MAT scores, non-Hispanic youth were reading at the 5.8 grade level and performing at the 6.4 grade level in math. This places non-Hispanic STEP youth almost three grade levels (2.7) behind in reading and more than two grade levels behind in math.

The better average performance of Hispanic STEP youth in math at baseline compared to the non-Hispanics could be due to the effects of the eligibility floor (that is, being school and reading at the fourth grade level). A disproportionate number of low-achieving Hispanics, compared to non-Hispanic groups, may have been cut off from participation due to their problems with the English language.

Despite comparable or superior performance by Hispanics in many measures of educational performance, other educational characteristics show them at a distinct disadvantage. Over 40 percent of the Hispanic youth in STEP reported being absent more than 10 days during the 1984-85 school year. This contrasts sharply with the non-Hispanic sample, of whom only 24 percent reported high absenteeism. The rates of absenteeism are roughly comparable for males and females within ethnic groups -- 41 percent of Hispanic males and 46 percent of Hispanic females reported high rates of absenteeism. Among non-Hispanics, 24 percent of females and 25 percent of males reported more than 10 absences during the prior school year.

Metropolitan Achievement Test scores, grade retention and absenteeism provide an objective picture of the educational condition of STEP Hispanic youth. Measures of educational

expectations and enjoyment of reading and math provide an indication of these students' own views regarding their education. Table II.3 also contains data on these subjective measures.

While there were no significant differences in the educational expectations of Hispanic treatment and control youth, the discrepancy between Hispanics and non-Hispanics was striking. Less than two-thirds of these Hispanic youth (61 percent) expected to continue their education beyond high school compared to almost three-fourths of the non-Hispanic youth. Expectations for post-high school education were roughly comparable for Hispanic males and females -- 63 percent of the males and 60 percent of the females indicated that they expected to continue their education after high school.

Despite the similarity in achievement testing, the percentage of youth who reported that they enjoyed reading and math either "very much" or "a lot" is significantly lower for Hispanics than for non-Hispanics. Only 25 percent of Hispanic youth claimed to enjoyed reading (compared to 39 percent of non-Hispanics) and 39 percent enjoy math (compared to more than half of non-Hispanic youth). Again there are no major differences between Hispanic males and females. Slightly more Hispanic girls (29 percent) than Hispanic boys (23 percent) indicated that they enjoyed reading, while 39 percent of both Hispanic boys and girls said they enjoyed math. Among non-Hispanics there was a larger difference between boys and girls with respect to reading enjoyment -- 46 percent of girls but only 33 percent of boys enjoyed reading. But approximately the same proportion enjoyed math (53 percent of girls and 52 percent of boys).

Although Hispanic youth resembled the remainder of the STEP sample on most of the objective indicators of educational condition, their high absenteeism, relatively low educational expectations and lack of enjoyment of reading and math distinguished them from their non-Hispanic counterparts. Given that Hispanics and non-Hispanics had the same achievement levels this finding is surprising. Based on the Hispanic Policy Development Project's (1984:10) finding that "Hispanic males work more hours per week while attending school than does any other group," the high absenteeism of Hispanics might be related to working. But there is no evidence in the STEP data to support this hypothesis; comparable percentages of Hispanic and non-Hispanic youth reported prior work experience.

An alternative hypothesis is that these findings reflect difficulties with English. Although these Hispanic youth are performing as well as the non-Hispanic youth, attaining that achievement level may be more difficult and therefore less enjoyable because of problems with English. If Hispanics find school more difficult than their non-Hispanic counterparts, they may also be likely to miss school more frequently.

Although the most educationally disadvantaged Hispanic youth have likely been excluded from the STEP sample, these Hispanic youth are probably more at risk of dropping out of school than their non-Hispanic counterparts based upon their high absenteeism, lower expectations and lesser enjoyment of reading and math.

FERTILITY-RELATED CHARACTERISTICS

Treatment youth in STEP spent 18 of their summer program hours in Life Skills and Opportunities (LSO) classes. Information on contraceptive knowledge and sexual behavior was collected at baseline and endline to assess the impact of this component of the STEP treatment.

Table II.4 summarizes the self-reported fertility-related characteristics of STEP youth at baseline. Many of these youth are already sexually active at 14 and 15. Slightly fewer Hispanic youth (46 percent) than non-Hispanic youth (52 percent) report prior sexual experience. This discrepancy in the level of sexual experience between Hispanics and non-Hispanics is due primarily to the sexual experience of females. More than 60 percent of both Hispanic (63.8 percent) and non-Hispanic (68.8 percent) boys reported prior sexual experience. Among STEP females, 33.6 percent of non-Hispanics reported prior sexual experience but only 22.2 percent of Hispanic girls were sexually experienced. These data are consistent with the National Assessment of Educational Progress findings that only 12.4 percent of Hispanic youth report pregnancy as the reason for dropping out of school compared to 27.5 percent of black students (Kirsch and Jungeblut, 1986:47, Table 8).

STEP youth appear to be sexually active at an earlier age than adolescents in general. Tabulations from the 1982 National Longitudinal Survey (which included over 9,000 respondents) estimated that only 16.6 percent of all males and 5.4 percent of all females were sexually active by age 15 (percentages for Hispanics were 19.3 for males and 4.3 for females.) Although the evidence is sketchy, there is some indication that living in female-headed households, in poverty and in an economically depressed neighborhood are linked to earlier sexual activity (Moore, et al. 1986:136). STEP youth are poor and disadvantaged, and may be more likely to be sexually active at an earlier age than adolescents in general.

Although close to 60 percent of all STEP youth have had a sex education course, they are largely ignorant with respect to birth control. Several scales designed to tap the impact of the LSO curriculum were developed and measured via the confidential questionnaires administered at the beginning and end of the summer. Two measures of contraceptive knowledge were included in the questionnaire: (1) an eight-item index of knowledge of the

Table II.4

Fertility-Related Characteristics of STEP Youth At Baseline

	PERCENT OR MEAN DISTRIBUTION OF STEP YOUTH AT BASELINE		
	Hispanics		Non-Hispanics
	T	C	Total
Mean Number Correct Answers on Birth Control Availability Question (Maximum = 8)	3.05	3.13	3.01
Mean Number Correct Answers on General Birth Control Knowledge Question (Maximum = 12)	4.70	5.12	4.82
Mean Number Correct Answers on Knowledge of Consequences of Teenage Pregnancy (Maximum = 2)	.96	1.09	1.07
Percent Believing Both Partners Should Be Responsible for Birth Control	66%	65%	72%
Percent Who Have Taken a Prior Sex Education Course	60%	57%	60%
Percent With Prior Sexual Experience	43% (101)	49% (108)	52% (1132)
Mean Best Age to Have First Child	22.1	22.3	22.5
Mean Best Age to Get Married	22.3	23.2	23.5

availability of various contraceptives and (2) a 12-item index of general birth control knowledge.

The data in Table II.4 show that STEP youth in general possess limited knowledge about contraception. Both Hispanic and non-Hispanic youth correctly answered an average of only three of the eight birth control availability items. That is, on average, STEP youth did not know whether five of the eight birth control methods could be obtained over the counter, without a doctor's prescription. Similarly, these youth missed an average of seven of the 12 true-false statements on general birth control knowledge. There are no significant differences between Hispanic treatments and controls, between males and females or between Hispanics and non-Hispanics on either of these indices.

With respect to knowledge about the consequences of teenage pregnancy, i.e., the impact of parenting on a girl's education and the cost of raising a child, STEP youth generally answered only one of the two questions correctly. Only about 20 percent of the Hispanic youth were able to answer both questions correctly. Again, Hispanic youth resemble the remainder of the STEP sample and no sex differences were observed with respect to this measure.

Finally, STEP youth were asked what they thought was the best age to have their first child and the best age for them to get married. For Hispanic and non-Hispanic youth, treatment and control youth, both males and females the average age at which they thought it best to have their first child was between 22 and 23. There were also no significant differences among any of these groups of STEP youth in the average age cited as best to get married. The average best age to get married ranged from 22.3 for Hispanic treatment youth to 23.7 for non-Hispanic treatment youth. Given the high percentage of STEP youth who are already sexually active at 14 and 15 (and therefore likely to have a child in the near future), these mean ages for having a first child and for getting married are somewhat surprising.

VARIATIONS BY ETHNIC SUBGROUP AND SITE

The discussion of participant characteristics to this point has focused on differences between Hispanics and non-Hispanics participating in STEP and between treatment and control youth in the Hispanic sample. The ethnic group designation "Hispanic" actually consists of several distinct subgroups. In the United States the largest Hispanic subgroups are Mexican-Americans, Puerto Ricans and Cubans. Other subgroups (primarily from Central and South America) tend to be categorized as "Other Hispanic."

Of the 253 Hispanic youth in the STEP sample, 164 (65% identified themselves as Mexican-American and 43 (17%) as Puerto Rican. The remaining 18 percent were either unknown (we have no information on their subgroup) or some other Hispanic group (including Cuban). The majority of Hispanics in the sample were located in three of the STEP sites --Boston, Fresno and San Diego. Table II.5 presents the distribution of Hispanic youth across the sites by ethnic subgroup.

As this table shows, virtually all the Puerto Rican youth were in Boston and almost all the Boston Hispanics were Puerto Rican. Almost 70 percent of the Mexican-American youth were in Fresno and an additional 26 percent live in San Diego. The high correlation between site and ethnic subgroup makes it impossible to distinguish differences due to ethnic subgroup from those due to site. With this caveat in mind, characteristics of the ethnic subgroups and site differences are discussed below.

Ethnic Subgroups

In 1983 almost 60 percent of Hispanics were of Mexican origin while 15 percent were Puerto Rican (Moore and Pachon, 1985). Data from the March 1985 Current Population Survey indicate a similar breakdown; among Hispanics who responded to the CPS, 61 percent were Mexican-American and 15 percent were Puerto Rican (Orum, 1986). These two groups also comprised the largest portion of the STEP Hispanic sample. The slightly higher percentages of Mexican-Americans (65%) and Puerto Ricans (17%) in the STEP sample (compared to national figures) reflect the geographic location of the three STEP sites that contain the majority of the Hispanic youth.

Characteristics of the Hispanic sample by ethnic subgroup are presented in Table II.6. The two subgroups of Hispanic STEP youth were remarkably similar.[3] Two characteristics in particular, however, distinguished the Puerto Rican youth from the Mexican-American youth -- public assistance receipt and household composition. Puerto Rican youth were significantly more likely to reside in a household headed by a female receiving public assistance. This discrepancy in the proportion of female-headed households is consistent with national data for Hispanics. The 1980 census and the 1985 Current Population Survey indicate that 40-44 percent of mainland Puerto Rican families are headed by

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[3] The other Hispanic and unknown subgroups are residual categories that include students who identified themselves as Cuban (four youth) or as other Hispanic as well as those Hispanics who provided no information about their ethnic subgroup. Since the small number of cases make estimates for these categories very unstable, the data are not presented or discussed.

Table II.5

Distribution of STEP Hispanic Youth, by Site and Subgroup

ETHNIC SUBGROUP	SITE				
	Boston	Fresno	Portland	San Diego	Seattle
Mexican-American	0	113	4	43	4
Puerto Rican	35	2	3	2	1
Other Hispanic	5	14	2	4	0
Unknown	4	12	0	5	0
Total	44	141	9	54	5

Table II.6

Selected Characteristics of STEP Hispanic Youth at Baseline, by Ethnic Subgroup

	PERCENTAGE OR MEAN DISTRIBUTION AT BASELINE	
	Mexican-American	Puerto Rican
Percent Residing in Female-Headed Household	44%*	64%*
Mean Household Size	5.34	5.65
Percent Residing in Household Receiving Public Assistance	60%*	79%*
Mean MAT Reading Score at Baseline	723	728
Mean MAT Math Score at Baseline	715	695
Percent Who Expect Post-High School Education	59%	67%
Percent Repeating a Grade	29%	28%
Percent Absent More Than 10 Days During SY 84-85	43%	49%
Percent With Prior Sexual Experience	46%	46%
Mean Number Correct Answers on Birth Control Availability Questions	3.17	3.23

*Differences between Mexican-Americans and Puerto Ricans are significant at the .05 level.

Table II.6 - (cont'd)

	PERCENTAGE OR MEAN DISTRIBUTION AT BASELINE	
	Mexican-American	Puerto Rican
Mean Number Correct Answers on Birth Control Knowledge Questions	4.91	4.91
Percent Believing Both Partners Should Be Responsible for Birth Control	67%	60%
N	164	43

*Differences between Mexican-Americans and Puerto Ricans are significant at the .05 level.

women, compared to approximately 20 percent for other Hispanic groups (Massey, 1982; Orum, 1986).

Educationally, Mexican-Americans and Puerto Ricans in the STEP sample were similar with respect to their MAT reading scores, grade retention and absenteeism. The Mexican-American group, however, scored significantly higher on the math portion of the MAT while significantly more Puerto Rican youth expected to continue their education after high school.

With respect to fertility-related characteristics, there were no significant differences across the ethnic subgroups. These Mexican-American and Puerto Rican youth were equally sexually experienced and had similar levels of knowledge about contraception.

Site Differences

In general, differences in the characteristics of Hispanic youth across the sites were neither large nor significant. Only four characteristics were substantially different (Table II.7).

In every site except Boston, the majority of Hispanic STEP youth were in the 9th or 10th grade during the 1984-85 school year. Eighty-five percent of the Hispanic youth in Boston, however, had just completed the 7th or 8th grade. This difference reflects focused recruitment of 8th graders in the Boston site. Given the high correlation between site and ethnic subgroup distribution, it is difficult to distinguish whether the educational differences between Puerto Ricans and Mexican-Americans noted previously reflect ethnic differences or this site's difference in grade level.

Boston Hispanics were also distinctive in the high rate of female-headed households and receipt of public assistance. For the overall STEP sample, site differences with respect to these characteristics were not evident (Branch, et al., 1986, Tables 4 and 7). This difference, then, most likely reflects the ethnic composition of the Boston Hispanic sample (primarily Puerto Rican) rather than a site difference.

Although baseline MAT reading scores for Hispanics ranged from a low of 719 (grade equivalent of 5.9) in Fresno to a high of 729 (grade equivalent of 6.5) in San Diego, the differences were not significant. In math, however, the San Diego average of 736 was equivalent to a grade level of 7.9, significantly better than Boston's 694 (6.6 grade equivalent) and Fresno's 698 (6.7 grade equivalent). This difference reflects the generally higher math scores for the overall San Diego sample (see Branch, et al., 1986, Table 4) and thus is quite likely due to site-specific factors, not ethnic subgroup differences.

Table II.7

Selected Characteristics of STEP Hispanic Youth at Baseline, by Site

	PERCENTAGE OR MEAN DISTRIBUTION AT BASELINE				
	Boston	Fresno	Portland	San Diego	Seattle
Percent Residing in Female-Headed Household	68%	44%	25%	41%	20%
Percent Residing in Households Receiving Public Assistance	84%	63%	56%	52%	60%
Mean MAT Reading Scores at Baseline	726	719	718	729	728
Mean MAT Math Scores at Baseline	694	698	708	736	724
Percent Who Expect Post-High School Education	69%	60%	67%	55%	80%
Percent Repeating a Grade	30%	31%	33%	30%	40%
Percent Reporting Limited English Proficiency	16%	6%	11%	11%	20%
N	44	141	9	54	5

Summary

In summary, Hispanic youth who participated in STEP clearly fit the at-risk profile that characterizes the overall sample: they shared similar demographic and economic characteristics, objective educational measures and fertility-related characteristics. But Hispanic youth appeared to be significantly more disadvantaged than non-Hispanic youth in their attitudes toward education (i.e., enjoyment of reading and math) and their frequent absence from school. Hispanic youth were much more likely to report high absenteeism, a lack of interest in reading and math, and much less likely to have expectations of continuing their education beyond high school. These latter characteristics indicate that Hispanic youth were more dropout-prone than the non-Hispanic youth in the STEP sample.

III. THE IMPACT OF STEP

The impact of one summer of participation in STEP on the Hispanic participants with respect to educational and fertility-related outcomes is reported here. These analyses represent only the first glimpse of the impact of STEP. Current data for only one cohort are available and the sample of Hispanics is small.[4] The report on the 1986 summer of STEP will include the second cohort and analysis of the aggregate sample. In addition, much more extensive analyses will be completed and reported as STEP youth are followed up over the next six years.

Although the long-term goal of the STEP intervention is to reduce the high dropout rate of disadvantaged youth, STEP seeks to effect this reduction by improving academic skills and increasing sexual responsibility among these youth. In the short-term, impacts are indicated by changes in academic performance and fertility-related attitudes, knowledge and behavior over the first summer of participation.

Youth who were recruited and accepted into STEP were randomly assigned to treatment and control groups. Treatment youth participated in remediation and Life Skills and Opportunities instruction and worked half a day. Control youth spent all of their program hours in work experience. Random assignment had the effect of creating two approximately equivalent groups. Statistically, the two groups can be presumed equal at the time they began the program (the baseline data presented in Tables 1, 3 and 4 substantiate this). Holding constant any differences at baseline, differences observed at the end of the program can be attributed to participation in the STEP treatment.

Short-term impact (i.e., the impact of one summer of STEP participation) on academic outcomes was based primarily on the analysis of standardized, scaled scores from the Metropolitan Achievement Test (MAT) taken by both treatment and control youth at the beginning and end of the summer program. Gains or losses in reading and math were indicated by comparing pre-test and post-test scores within treatment and control groups of youth. The net impact of participation was based on the amount of loss or gain by treatment youth compared with losses or gains by control youth.

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[4] The small sample of Hispanics available for analysis and the high correlation between ethnic subgroup and STEP site preclude analysis of impact separately for the two Hispanic subgroups represented in the sample -- Mexican-Americans and Puerto Ricans. Consequently, all analyses presented and discussed are for the overall Hispanic sample.

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With respect to the educational outcomes for Hispanic youth, we will first look at simple unadjusted means of the MAT scaled scores and second present the results of a multivariate regression analysis. In the multivariate analyses, the impact of STEP was estimated by regressing post-test MAT scaled scores in math and reading on group membership (treatment vs. control), controlling for pre-test scores and a number of exogenous variables.

The effect of STEP participation on the educational expectations of Hispanic youth and on their enjoyment of reading and math was also examined. The impact of STEP on fertility-related outcomes was examined primarily through changes in knowledge about contraception. These impacts were estimated through bivariate techniques. Changes in mean scores and percentages for treatment youth were compared with the changes experienced by control youth.

EDUCATIONAL OUTCOMES

Prior research indicates that summer is a period when learning for many youth slows, stops or decays. Research by Heyns (1978) suggests that this pattern is most prevalent among disadvantaged youth who may actually experience learning regression over the summer months. In a study of summer learning rates that compared black and Puerto Rican schools with all-white schools, Hayes and Grether (1969:7) found that "upward of 80 percent of the difference between economically advantaged all-white schools and the all-black and Puerto Rican schools" could be accounted for by differential summer growth.

Researchers have suggested several factors that may contribute to differential learning loss over the summer. Heyns (1978) suggests that the socioeconomic environment in the household is a primary cause of learning loss and that only during the summer is it possible to disentangle the effects of schooling and the environment on academic performance. Jencks (1978:xiii) has argued that exposure to neighborhood peer culture and "street corner society" may exert more influence on disadvantaged youth than on advantaged adolescents. And that the equalizing influence of schools is offset by the unequalizing influence of peer culture during the summer.

Much of the net impact of participation in STEP on learning depends upon the magnitude of control group losses. That is, the estimation of the impact of STEP is a function of the difference between treatment and control youth with respect to changes in MAT scaled scores from pre-test to post-test. It is important that measured control group losses represent real, as opposed to artifactual losses. Less motivation to perform well on the part of control youth could result in a measured loss that is much larger than the true loss. Therefore, P/PV developed an incentive scheme to motivate both treatment and control youth to do

their best at both pre-test and post-test. The incentive had to be large enough to motivate youth to perform well, but not prohibitively expensive.

The incentive devised was a lottery that ran concurrently with testing at each STEP site. Youth who took the MAT test received one chance of winning for taking the test and one chance for each correct answer. Since the probability of winning is increased by how well one performs on the test, students should be motivated to do the best they can. At each site, 15 control youth and 15 treatment youth were chosen as winners and awarded a $50 prize.

Of the 232 Hispanic youth who completed the MAT and baseline questionnaire, 201 (87 percent) were also tested at the conclusion of the summer program. Analyses completed and reported in Branch, et al. (1986) indicate that the comparability of treatment and control youth was not affected by sample attrition over the summer. The analyses discussed here are based on the sample of Hispanic youth for whom both pre-test and post-test (baseline and endline) data were available.

Academic Performance

Table III.1 presents the academic performance of control youth over the summer. These data indicate the magnitude of the learning loss that occurred in the absence of STEP. Two things are apparent from the data presented in Table III.1 -- the relatively little learning loss experienced by Asian youth (most of whom are Vietnamese) and the substantial loss experienced by Hispanic youth. Since the impact of STEP is dependent upon the magnitude of control group losses, it is important to consider possible explanations for these findings.

The minimal loss experienced by Asian youth is most likely attributable to the characteristics of Asians in STEP that distinguish them from other STEP youth. Unlike other race/ethnic groups in STEP, Asians did not fit the typical profile of dropout-prone youth (see Appendix Table A.1). Asian absenteeism and sexual activity rates were significantly below those for other STEP youth and they enjoyed reading and math significantly more. Although the Asians in STEP were low-income (they must be JTPA eligible to participate), a smaller percentage came from single-parent households and therefore may be less poverty prone in the future. Asian youth most likely met STEP's educational - eligibility criteria because of English language deficiencies and were not as disadvantaged as other STEP-eligible youth (see Appendix Table A.1). Being relatively more advantaged and coming from somewhat more advantaged households may result in less summer learning loss for this group.

The large summer losses experienced by other race/ethnic groups can most likely be attributed to the types of factors cited by

Table III.1

Pre-test to Post-test Change in Control Group
MAT Scores, by Race

Group	READING SCORES			MATH SCORES		
	Pre-test	Post-test	Change	Pre-test	Post-test	Change
Controls						
Hispanic	725.38	697.61	-27.77*	708.34	672.95	-35.39*
Non-Hispanic	717.78	705.90	-11.87*	693.71	680.69	-13.01*
Asian	712.99	707.72	-5.27	736.64	736.56	-0.07
Black	718.06	705.09	-12.97*	682.95	665.66	-16.72*
White and Other	722.04	707.43	-14.61*	691.88	680.39	-11.49

*Pre-test and post-test scores are significantly different at the .05 level.

Heyns (1978; 1986) and Jencks (1978) -- the socioeconomic environment of the household and neighborhood peer culture. In addition, Hispanic youth may have another factor that contributes to summer learning loss -- less practice of English language skills in households where Spanish is the more frequently spoken language. The nature of the impact of bilingualism on academic performance is unclear. One study, which found that English monolingual Hispanics complete high school at about the same rate as whites while Hispanics overall complete much less schooling than whites (Fligstein and Fernandez, 1982), supports an argument that students from Spanish speaking households have less opportunity to practice English skills and this may result in increased summer losses. A recent study by Dornbusch, reported in The Harvard Educational Letter (Nov. 1986), however, suggests that bilingual Hispanics who speak English at home tend to do worse in school than those who speak Spanish with their parents.

Analyses of the sample of seniors in the High School and Beyond data reported by Fernandez and Nielson (1986) indicate the complexity of the relationship between bilingualism and academic achievement. They found that Hispanic bilinguals generally had better achievement than Hispanics who are English monolingual. Among bilinguals, however, limited English proficiency and frequency of Spanish use both had negative effects on academic performance. Thus, positive effects of bilingualism on academic achievement appear to be mediated by negative effects of limited English proficiency and frequency of Spanish use.

The information available in the STEP data set is insufficient to empirically test hypotheses that explain race/ethnic discrepancies in summer learning losses. What is clear from the control group data is that losses are substantial for all but the Asian youth in the sample.

Table III.2 presents a comparison of mean baseline and endline MAT scores for treatment and control youth by race/ethnicity. Although both Hispanic treatment and control youth experienced losses in both reading and math over the course of the summer program, these losses were significantly smaller for treatment youth than for control youth. The difference between treatment and control group losses for Hispanics is equivalent to 1.1 grade level in reading and .7 of a grade level in math. STEP was able to stem large learning losses among Hispanic youth.

The effect of STEP on average MAT scores was much greater for Hispanics than for non-Hispanics (Table III.2). The difference between treatment and control group losses in reading for non-Hispanic youth is only .1 of a grade equivalent. In math, control group losses were equivalent to .4 of a grade level more than treatment losses. Although the Hispanic control youth suffered more learning loss over the summer than non-Hispanic youth, Hispanic youth appear to derive greater benefits from

Table III.2

Pre-test to Post-test Change in MAT Scores, by Group and Race

Race and Group	READING SCORES				MATH SCORES			
	Pre-test	Post-tes	Change Between Pre- and Post-test	Net Difference[a]	Pre-test	Post-test	Change Between Pre- and Post-test	Net Difference[a]
Hispanic								
Treatment	725.54	719.35	-6.19	21.58*	710.92	702.93	-7.99	27.4*
Control	725.38	697.61	-27.77*		708.34	672.95	-35.39*	
Non-Hispanic								
Total								
Treatment	715.96	706.99	-8.98*	2.89	686.42	687.89	1.47	14.48*
Control	717.78	705.90	-11.87*		693.71	680.69	-13.01*	
Asian								
Treatment	713.13	721.06	7.93	13.20*	745.78	760.47	14.69*	14.76
Control	712.99	707.72	-5.27		736.64	736.56	-0.07	
Black								
Treatment	714.85	701.92	-13.10*	0.13	672.09	669.58	-2.08	14.64*
Control	718.06	705.09	-12.97*		682.95	665.66	-16.72*	
White and Other								
Treatment	729.41	720.00	-9.41	5.20	684.71	688.49	3.78	15.27
Control	722.04	707.43	-14.61*		691.88	680.39	-11.49	

*Difference is significant at .05.

[a]An asterisk in this column indicates that change from pre- to post-test for treatments is significantly different from the change for controls.

participation in STEP. That is, STEP counteracted more of the learning loss for Hispanic participants than for non-Hispanic participants.

The results of the multivariate analyses of the impact of STEP on reading and math for Hispanic youth are presented in Table III.3. The regression analysis estimates the net impact of participation in STEP, controlling for the differences between treatment and control youth that existed at baseline. These results also indicate that participation in the six to eight weeks of STEP had a large and significant impact on the academic performance of Hispanic youth. In reading, the net impact of participation for Hispanic youth was equivalent to 1.1 grade levels in reading and .5 of a grade level in math.

The multivariate analyses also indicate that the impact of STEP was greater for Hispanic youth than for members of other racial/ethnic groups. As shown in Table III.4, the impact for non-Hispanic youth was statistically significant in math (equivalent to .3 of a grade level), but not in reading (.1 of a grade equivalent). The net impact of STEP for Hispanic youth exceeded that for other race/ethnicity groups in both reading and math.

The basic finding of the impact analysis was the strong effect that STEP participation had on both reading and math scores for Hispanics. The regression equations, however, contained a number of variables in addition to treatment/control group membership. These variables controlled for possible biases in the estimated treatment effect that might arise from differences between treatment and control groups. Since most of these control variables were coded as dummy variables, the coefficient of a given variable indicated the loss from pre-test to post-test for youth with that characteristic compared to youth without that characteristic. For example, a negative coefficient on the variable male, which was coded 1 for males and 0 for females, indicated that boys had larger losses than girls over the summer, regardless of treatment or control group status.

Several control variables directly contributed to the explanation of math post-test scores for Hispanic youth. Controlling for pre-test scores, math post-test scores were higher for girls and for youth who enjoyed math. Thus, boys and youth who did not enjoy math experienced greater losses in math scores over the summer. Math post-test scores also tended to be higher for eldest children, for youth in higher grades and for those with some work experience.

The influence of these control variables on the post-test scores of non-Hispanic youth was similar to that found for the Hispanic sample. In general the direction of the impact was the same.

Table III.3

Reading and Math Impact for Hispanics

Explanatory Variable	ESTIMATED COEFFICIENT	
	Reading	Math
Constant Term	197.15 (3.85)**	-17.61 (0.27)
Treatment	19.81 (3.03)**	23.03 (2.62)**
Male	-11.81 (1.71)	-24.02 (2.69)**
Position in Birth Order	-2.96 (2.03)	-5.78 (2.93)**
Problem With English	-15.94 (1.46)	0.80 (0.06)
Grade Last Year	5.69 (1.23)	17.06 (2.77)**
Absent Often Last School Year	1.16 (0.18)	2.72 (0.31)
Prior Work Experience	3.50 (0.50)	16.64 (1.80)
Expects Post-High School Education (base)	-9.26 (1.28)	-4.08 (0.43)
Reading Pre-test	0.68 (12.06)**	— —

*Significant at the .05 level.
**Significant at the .01 level.

Table III.3 - (cont'd)

Explanatory Variable	ESTIMATED COEFFICIENT	
	Reading	Math
Does Not Enjoy Reading	-6.73	
(base)	(1.89)	—
		—
Math Pre-test	—	0.85
	—	(12.79)**
Does Not Enjoy Math	—	-10.02
(base)	—	(2.40)*
Sample size	194	194
F-test	22.83	25.38
R-squared	.56	.58
Adjusted R-squared	.53	.56

*Significant at the .05 level.
**Significant at the .01 level.

NOTE: Numbers in parentheses are t-statistics.

Table III.4

Reading and Math Impacts for Non-Hispanics

Explanatory Variable	ESTIMATED COEFFICIENT	
	Reading	Math
Constant Term	121.45 (4.83)**	138.85 (4.68)**
Treatment	2.70 (0.90)	11.18 (2.80)**
Male	-9.38 (3.07)**	-18.32 (4.57)**
Position in Birth Order	-0.51 (0.81)	0.76 (0.92)
Problem With English	11.35 (2.21)*	25.48 (3.51)**
Grade Last Year	8.26 (3.95)**	9.68 (3.46)**
Absent Often Last School Year	-2.13 (0.58)	2.25 (0.47)
Prior Work Experience	-5.07 (1.59)	9.67 (3.46)**
Expects Post-High School Education (base)	2.46 (0.71)	4.81 (1.03)
Reading Pre-test	0.74 (2.17)**	— —
Does Not Enjoy Reading (base)	-3.19 (2.17)*	— —

*Significant at the .05 level
**Significant at the .01 level.

NOTE: Numbers in parentheses are t-statistics.

Table III.4 - (cont'd)

Explanatory Variable	ESTIMATED COEFFICIENT	
	Reading	Math
Math Pre-test	— —	0.71 (25.35)**
Does Not Enjoy Math (base)	— —	-9.36 (5.18)**
Sample Size	1073	1072
F-test	90.02	106.36
R-squared	.46	.50
Adjusted R-squared	.45	.50

*Significant at the .05 level
**Significant at the .01 level.

NOTE: Numbers in parentheses are t-statistics.

Although more of the control variables are statistically significant in the non-Hispanic model, there was no substantive difference in the results for Hispanics versus non-Hispanics.

Educational Expectations

As noted earlier, Hispanic STEP participants entered the program with significantly lower educational expectations than non-Hispanic participants. Hispanic youth were much less likely to expect to continue their schooling beyond high school. Research has long shown a high correlation between educational expectations and actual educational attainment (Sewell, et al., 1969). Since Hispanic youth have a particularly high dropout rate, increasing their expectations as well as their academic performance may be crucial to reducing the probability that they will drop out of high school.

Educational expectations were measured by asking participants "What is the highest grade of school or year of college you think you will complete?" at both baseline and endline. For analytic purposes, responses to this question were dichotomized between those who expect to complete 12 years or less and those who expect to continue beyond high school. The analysis looks at the percentage of change in expectations from the beginning of the summer to the end of the program.

The absolute number of students whose educational expectations changed during the summer was not large. However, the pattern of changes indicates a substantial impact on expectations. Among Hispanic youth, the percentage of treatment youth expecting to continue their education after high school increased from 59 percent at baseline to 67 percent at endline. This is significantly different from the experience of control group youth, whose expectations of post-high school education declined over the summer from 65 percent at baseline to 61 percent at endline.[5]

The apparent impact of STEP on the educational expectations of Hispanic youth was not observed for the non-Hispanic sample. Expectations of both treatment and control non-Hispanics remained approximately the same from pre-test to post-test. It should be noted that the initial expectations of non-Hispanic youth were quite high; three-fourths anticipated at least one year of post-high school education.

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[5]A breakdown of the data by sex suggests that the treatment effect is especially strong among Hispanic girls, but these differences are not statistically significant.

Enjoyment of Reading and Math

Changes in enjoyment of reading and math were examined by comparing the mean reading and math enjoyment levels for STEP youth at baseline and endline. While STEP apparently raised the academic ambitions of some Hispanic participants, their enjoyment of reading and math did not change significantly over the summer. The mean levels of enjoyment indicate that enjoyment of reading increased for Hispanic males and decreased for Hispanic females in the treatment group while the opposite pattern was observed for Hispanic control youth. In math, the mean level of enjoyment increased slightly for all Hispanic youth regardless of sex or of treatment or control group status. None of these baseline to endline changes, however, was statistically significant.

The pattern is similar for non-Hispanics. Mean level of reading enjoyment increased for non-Hispanic females and either decreased slightly or remained unchanged for males. The level of math enjoyment increased for all non-Hispanic groups except treatment females, whose level of enjoyment did not change over the summer. All changes in the average levels of enjoyment, however, were small and generally non-significant.

Summary

Participation in one summer of STEP significantly reduced the amount of learning loss experienced by Hispanic youth in both reading and math. Hispanic youth appear to suffer greater learning loss over the summer than non-Hispanic youth, but they derive greater benefits from participation in STEP. In addition, STEP apparently raised the educational expectations of Hispanic youth, especially among Hispanic females. The educational expectations of non-Hispanic youth started higher and did not change over the summer.

FERTILITY-RELATED OUTCOMES

One of the primary reasons young women drop out of high school is teen pregnancy (Card and Wise, 1978; Moore and Burt, 1982). Although affected to a lesser extent, adolescent males who become fathers are also more likely to drop out of school. A portion of the STEP treatment involved life skills instruction designed to increase social and sexual responsibility among these youth. As the demonstration continues and these youth are followed over several years, extensive information about sexual activity, contraceptive use, pregnancies and pregnancy outcomes will be available for analysis. At this time, however, the analysis is restricted to short-term impacts of the LSO instruction. The primary analysis of the impact of STEP on fertility-related outcomes at this time focuses on changes in knowledge and attitudes.

Contraceptive Knowledge

The baseline and endline questionnaires contained two inventories for measuring contraceptive knowledge. The first inventory contained eight questions about the availability of eight birth control methods. For each method, youth were asked whether the method was available over the counter or whether a doctor's prescription was necessary to obtain the method. Table III.5 presents the average scores for Hispanic treatment and control youth.

The level of knowledge was very similar for both groups at baseline. Hispanic youth correctly responded to an average of only three of the eight items. By the end of the program, however, Hispanic treatment youths' knowledge had increased significantly, with youth correctly answering an average of two and a half more questions than at baseline. In contrast, the knowledge of Hispanic control youth did not change. The net impact of STEP on knowledge of birth control availability for Hispanic youth was 2.25 questions. The magnitude of this coefficient is somewhat larger than that reported for the overall STEP sample for whom the net impact was 1.73 (see Table 21, Branch, et al., 1986).

The second fertility-related knowledge inventory consisted of twelve true or false statements designed to tap general contraceptive knowledge. At baseline, Hispanic treatment and control youth could correctly answer an average of five of these statements. Again STEP significantly affected the knowledge of treatment youth. At endline Hispanic treatment youths' number of correct responses increased by an average of almost four items, while the average number of correct answers remained the same for control youth. Thus, the net impact of STEP with respect to general contraceptive knowledge for Hispanic youth was 3.69. This effect is larger than that found for the overall sample. The net increase in general contraceptive knowledge was 2.55 questions for the full sample (see Table 21, Branch, et al., 1986).

Consequences of Adolescent Parenting

A third indicator of the impact of STEP on fertility-related attitudes was a two-item scale measuring knowledge of the consequences of teenage parenting. Participants were asked about the cost of raising a child to age 18 and the likelihood that a teenage mother would complete high school. At baseline both treatment and control Hispanic youth correctly answered an average of one of the two questions. The average number of correct responses increased somewhat for both groups over the summer, with the increase for treatment youth slightly larger than that for control youth.

Table III.5

Baseline to Endline Change in Fertility-Related Characteristics of Hispanic Youth, by Group

	MEAN OR PERCENTAGE DISTRIBUTION			
	Baseline	Endline	Change	N
Mean Number Correct Answers on Birth Control Availability				
Treatment	3.05	5.63	2.58[a]	102
Control	3.13	3.46	.33	100
T-C Difference	-0.08	2.17[b]		
Mean Number Correct Answers on Birth Control Knowledge				
Treatment	4.70	8.25	3.55[a]	102
Control	5.12	4.98	-.14	100
T-C Difference	-0.42	3.27[b]		
Mean Number Correct Answers on Consequences of Teenage Pregnancy				
Treatment	.96	1.35	.39[a]	80
Control	1.09	1.21	.12	72
T-C Difference	-0.13	0.14		
Percent Believing Both Partners Should Be Responsible for Birth Control				
Treatment	66%	87%[b]	21%[a]	98
Control	65%	67%[b]	2%	99

[a] Change from baseline to endline is significant at .01 level.

[b] Treatment-control difference is significant at the .01 level.

Responsibility for Birth Control

A final indication of the effect of STEP participation on contraceptive attitudes related to the perceived responsibility for birth control. Whether an individual perceives contraception as being the responsibility of the girl, the boy or both may affect the likelihood of practicing contraception.

With respect to this measure, it again appears that STEP had an impact on the attitudes of Hispanic youth. At baseline approximately two-thirds of Hispanic youth, both treatment and controls, indicated that they believed that both partners should be responsible for birth control. After participation in the STEP program, 87 percent of the Hispanic treatment youth indicated a belief that responsibility for birth control should be shared. This represents a significant increase of 21 percent compared to the negligible 2 percent shift among the control youth.

Sexual Behavior

In addition to the measures of contraceptive knowledge, STEP participants were asked several questions about their sexual experience and use of contraceptives. At baseline, 96 Hispanic youth (38% of the total Hispanic sample and 46% of the 209 who answered the question) indicated that they were sexually experienced (that is, that they had ever had sex). In addition to asking whether the youth were sexually experienced, whether they were currently sexually active was measured by asking if they had had sex during the previous two months. At baseline only 47 Hispanic youth (19%) indicated that they were currently sexually active. At the end of the summer, the percentage of currently sexually active youth had increased slightly. Fifty-six Hispanic youth (22%) indicated that they had been sexually active during the two months of STEP and the distribution of these youth between treatment and control groups was nearly equivalent. Thirty Hispanic control youth (23% of the control sample) and 26 Hispanic treatment youth (21% of the treatment sample) were sexually active during the two months of STEP. With such a small samples it is difficult to determine what impact, if any, STEP had on the short-term sexual behavior of these Hispanic youth.

Summary

Although the small samples make it difficult to draw any solid conclusions, STEP does not appear to have affected the sexual behavior of Hispanic youth during the two months of the treatment. Given the short duration of STEP, this result is not surprising. It is clear, however, that Hispanic treatment youth have benefited from STEP with respect to contraceptive knowledge.

Whether this increased knowledge will translate into less sexual activity and more responsible contraceptive behavior requires analysis of information that will be collected in the long-term follow-up of STEP youth.

IV. CONCLUSIONS

The results of Hispanics participation in the first summer of the STEP demonstration are very encouraging. Participation in STEP significantly reduced the amount of learning loss experienced by Hispanic youth in both reading and math. Overall, while the learning loss was distressingly large for Hispanics, the impact of STEP participation was much greater for the Hispanic youth in the program than for the non-Hispanic sample. Based on MAT scores at the beginning and end of the summer, control group losses were greater for Hispanic youth than for other race/ethnic groups while Hispanic treatment youth lost significantly less over the summer than did Hispanic control youth.

Expectations for post-high school education increased among Hispanic treatment youth, especially among Hispanic girls. This finding varies from that for the non-Hispanic participants, for whom STEP exerted no influence on educational expectations. Participating in STEP did not affect the enjoyment of reading or math for either Hispanic or non-Hispanic youth.

Fertility-related results were also similar for Hispanics and non-Hispanics. Knowledge about contraception increased over the summer and more students reported that they perceived contraception as the joint responsibility of both partners. But students did not change their perceptions of the best ages to have a first child or to get married.

There was no observable change in the sexual behavior of STEP Hispanic participants over the summer, but the small number of sexually active youth and the short time period of the summer program make it difficult to discern possible changes. An examination of the impact of STEP on sexual behavior requires a larger sample of Hispanic youth and a longer time period between measurements.

That Hispanics in the STEP sample experienced larger learning losses than other racial/ethnic groups, despite the fact that each group began the summer at roughly comparable achievement levels, is disturbing. Because the data set does not contain information that would permit empirical tests, no definitive explanation of the cause of the differential learning loss by Hispanics is presented.

Regardless of the cause, the sizeable learning loss of Hispanics is of serious concern. The literature suggests that English language literacy is a significant determinant of high school completion and labor market success. Since the MAT reading test is one measure of English literacy, it is likely that the large losses indicated by the change in MAT scores contribute substantially to the educational problems of Hispanics.

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One dimension of the STEP demonstration may be relevant in this regard: its potential effect on the length or structure of the school year. Jencks, in the introduction to Barbara Heyns's book on summer learning (1978), comments on the equalizing effects of schooling and the disequalizing effects of summer. He suggests that one should "concentrate on changing the distribution of time spent in school rather than concentrating primarily on what happens to different types of students while they attend school" (Jencks, 1978:xiv). STEP does not directly deal with the quality of schooling issue, but may well speak to the issue of distribution of time spent in school. A number of early reviewers of the aggregate pattern of learning loss in STEP have suggested that increased schooling with reduced vacation time or summer interventions like STEP be considered to neutralize sizeable learning losses over the summer.

In the future we will be able to look at the impact of STEP on Hispanic youth more extensively. Of the 112 Hispanic treatment youth who were pre-tested in 1985, 88 (78.6%) returned for the second summer of STEP in 1986. This represents a slightly higher rate of return than for non-Hispanics (74.4% of pre-tested non-Hispanics returned in 1986).

With the inclusion of the second cohort in the 1986 summer program, the size of the Hispanic sample will double. Analyses of data from the second summer will address whether the differential learning losses observed in 1985 persist for the second cohort and whether STEP continues to counteract those learning losses for Hispanic youth. The larger sample of Hispanic youth and two summers of data will provide more stable estimates of the impact of STEP on Hispanic youth.

Beginning in 1986, test scores and attendance data are being collected annually from schools. Three waves of follow-up interviews with STEP youth, both treatments and controls, will be conducted beginning in the fall of 1987 (with waves two and three in 1989 and 1991). These data will allow us to examine some of the longer term impacts of STEP participation for both cohorts.

The STEP results for Hispanics look very promising. Based on them, one might want to consider using more intensively the Summer Youth Employment Program nationally to improve the educational circumstances of Hispanics. However, we believe that these results should be read with caution until we see that the second cohort's results are also strong for Hispanics and that STEP affects intermediate outcomes as well. (The STEP Report to be released next spring will address these issues.) Our early work suggests that the STEP intervention may well be an effective intervention in assisting Hispanics to complete their schooling.

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Appendix A.1

Comparisons of Ethnic Subgroups in the STEP Sample on Selected Characteristics at Baseline

	Hispanics	Non-Hispanics[a]	Asian[b]
Percent from Female Headed Households	48.2%	50.4%	19.7%*
Percent from Households Receiving Public Assistance	64.1%	64.1%	62.1%
Percent Absent More Than 10 Days During SY 84-85	43.2%	24.4%	10.2%*
Percent Who Enjoy Reading	25.4%	39.4%	50.0%*
Percent Who Enjoy Math	39.2%	52.8%	75.9%*
Percent Who Report Prior Sexual Experience	46.0%	52.0%	4.0%

[a] This category includes Asians, whites, blacks and others.

[b] *'s in this column indicate that the differences between Hispanics and Asians are statistically significant.

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